



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,718	09/05/2006	Keita Ishiduka	1608-7 PCT/US	3280
23869 7590 02/10/2009 HOFFMANN & BARON, LLP 6900 JERICHO TURNPIKE SYOSSET, NY 11791				
EXAMINER				
JOHNSON, CONNIE P				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
02/10/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/591,718

**Applicant(s)**

ISHIDUKA ET AL.

**Examiner**

CONNIE P. JOHNSON

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. The remarks and amendment filed 10/27/2008 has been entered and fully considered.
2. Claims 1-13 are presented.
3. Claims 3, 4, 7, 10, 12 and 13 are amended.

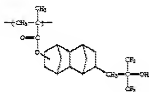
### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanna et al., U.S. Patent Publication No. 2004/0009430 A1.

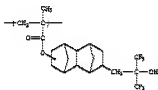
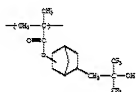
Kanna teaches a positive resist composition comprising a resin with a recurring group that decomposes by action of an acid to become soluble in alkali developer (page 2, [0018]). The recurring unit comprises divalent and trivalent cyclic groups (a1) (page 21). Examples of the (a1) groups are shown below:



Recurring units that meet the limitations of (a2) are on page 36 of the reference:



Recurring unit (a3) comprises the following unit on page 37:



The positive resist composition also comprises a photoacid generator (page 49, [0342]).

The method of forming a positive resist composition comprises applying the resist composition to a support, subjecting the resist to exposure, baking and developing the resist (page 71, [0423]). The combination of recurring units (a1), (a2) and (a3) is not exemplified in the reference. However, it would have been obvious to one of ordinary skill in the art to combine the recurring units because Kanna teaches recurring units

combined in any combination as shown increases solubility of the resin in an alkali developer, has less line edge roughness and less development time (page 1, [0013]).

6. Claims 1, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanna et al., U.S. Patent Publication No. 2004/0009430 A1 in view of Kawashima et al., U.S. Patent Publication No. 2004/0119954 A1.

Kanna teaches a positive resist composition comprising a resin that decomposes by action of an acid to become soluble in alkali developer and a photoacid generator. Kanna also teaches a method of forming the composition. Kanna does not teach that the resist composition may be formed by immersion exposure.

However, Kawashima teaches an immersion exposure method comprising water as the immersion liquid using an ArF laser (page 10, [0125]). Kanna also teaches exposure of a resist composition with an ArF laser. It would have been obvious to one of ordinary skill in the art to use immersion exposure in the composition of Kanna because immersion exposure enhances performance in forming patterns and prevents deteriorating image performance (page 2, [0020]).

#### ***Response to Arguments***

7. Applicant's arguments filed 10/27/2008 have been fully considered but they are not persuasive.

8. Applicant argues that Kanna does not disclose use of an immersion exposure method.

Applicant does not claim an immersion exposure method in claim 1. The recitation, "A positive-type resist composition for liquid immersion lithography" is

Art Unit: 1795

intended use and therefore does not add patentable weight to the claim. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

9. Applicant argues that Kanna teaches repeating units in a broad range and that it would not have been easy to select from among the broad range a combination of repeating units for constituting a resin suitable for a resist composition for immersion lithography.

Kanna teaches a finite group repeating unit structures representing (a1), (a2) and (a3) that are comprised in the resist composition. It would have been obvious to choose the repeating units as claimed because Kanna teaches any of the groups from (a1), (a2) and (a3) would combine to form a polymer that is capable of enhancing performance properties of the resist composition, absent any evidence to the contrary (page 12, [0164-0166]).

10. Applicant argues that Kanna does not disclose or suggest a structure of a resin in the resist for achieving the objectives of the present invention.

The repeating units of the polymer taught by Kanna meet the limitations of the resin component of the resist composition. Although Kanna may not point to the same benefits of the repeating units in the polymer, Kanna teaches performance improvements of the resist based on the repeating units in the resist polymer (page 12, [0164-0166]). The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for

patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

11. Applicant argues that the examiner's assertion that because Kanna and Kawashima have the same light source that it would be easy to use the composition of Kanna in immersion exposure is erroneous. Further, that Kanna teaches the repeating units in such a broad range it would not be easy to combine the repeating units in order to achieve the objective of the present invention.

That the resist compositions of Kanna and Kawashima are both exposed with an ArF laser is used to show a comparison of exposure between the references. One of ordinary skill would have been directed to immersion exposure for the resist composition of Kanna because the method of immersion exposure is conventionally known to improve performance in patterns and prevent deteriorating image performance as taught by Kawashima (page 2, [0020]).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Connie P. Johnson/  
Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795